

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of:	)	
William A. Cook, et al.	)	Before the Examiner
Serial No. 542,590	)	M. Shein
Filed October 17, 1983	)	Group Art Unit 335
EXERCISE RESPONSIVE	)	June 13, 1985
CARDIAC PACEMAKER	)	

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Hon. Commissioner of Patents and Trademarks

Washington, D. C. 20231

Sir:

Applicants' undersigned attorney recently learned of the following patents and hereby submits a copy of each in order for the Examiner to determine their materiality with respect to the examination of this application.

<u>Patent No.</u>	<u>Inventor</u>	<u>Issue Date</u>
3,405,708 128/692	Webster	Oct. 15, 1968
3,545,428 1692	Webster	Dec. 8, 1970
3,726,269 1713	Webster	April 10, 1973
4,153,048 1692	Magrini	May 8, 1979

Magrini shows a pigtail-type catheter for measurement of venous blood flow using the thermal dilution technique. FIG. 7 shows the catheter slightly modified for ventricular volume monitoring, the catheter including a thermistor 46' on a generally circular pigtail portion 22' in the left ventricle. The catheter includes a plurality of closely spaced injection apertures 82 through which a fluid is injected into the blood. The injectate is carried by the blood flow past the thermistor. Magrini

states that the thermistor may be affixed to terminal end section 34 (FIG. 1) by convenient adhesive means and the connecting wire thereof may be conveniently passed through one of the catheter lumen or apertures outwardly of venous flow B toward the appropriate instrumentation connection. No details of the thermistor mounting or wiring are shown or described.

U. S. Patent No. 3,726,269 discloses a catheter for calculation of blood flow and ventricular volume. The catheter measures the temperature of blood and cooled fluid with thermistors. The device has a loop configuration which is said to be useful for measuring left ventricular volume and cardiac output.

U.S. Patent No. 3,405,708 describes a catheter for measuring blood flow in an artery. The catheter incorporates a series of bends in order to locate the temperature sensing thermistor in the artery away from a vessel wall.

U.S. Patent No. 3,545,428 discloses a catheter for two thermistors for use in cardiac output measurement. One thermistor measures injectate temperature and the other measures blood temperature. The curved shape of the catheter holds one thermistor away from the vessel wall.

Respectfully submitted,

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